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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,090	05/10/2001	Hirokazu Yamagata	12732-037001	5147

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EXAMINER

CLEVELAND, MICHAEL B

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/852,090	Applicant(s) YAMAGATA ET AL.	
	Examiner Michael Cleveland	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,6,18,19,23,24,28,29,33 and 34 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 5,6,18,19,23,24,28,29,33 and 34 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 5-6, 18-19, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eida et al. (U.S. Patent 5,869,929, hereafter '929) in view of Kobori et al. (U.S. Patent 6,285,039, hereafter '039). (Ueda et al. (U.S. Patent 6,468,676, hereafter '676) is cited as evidence regarding claims 23-24.)

Claims 6 and 19: '929 teaches a method of manufacturing an active matrix light emitting device (col. 1, lines 13-25), comprising:

forming a hole injection layer (col. 14, lines 45-46), which may be a conductive polymer (col. 21, lines 32-49);

forming a green luminous layer comprising a first luminous material, such as Alq (col. 17, lines 11-16), over a substrate,

forming a red luminous layer comprising a luminous material over the green luminous layer, and

forming a blue luminous layer comprising a second luminous material and a dopant over a substrate to be overlapped with the green and red luminous layers, wherein white light is emitted from the red, green, and blue luminous layers (col. 18, lines 27-52). The luminous materials may be deposited by evaporation (col. 19, lines 56-67; col. 28, lines 11-20).

'929 does not explicitly teach that the red luminous layer comprises the first luminous material and a dopant, nor that the red luminescent layer is formed by evaporating the dopant while continuing the evaporation of the first luminous material.

'039 teaches that there are known dopants to produce red layers (col. 33, lines 36-47), including Alq₃ doped with red dyes, such as P-660 or DCM1 (col. 2, lines 23-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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have used a red Alq/DCM1 or Alq/P-660 to have produced a red layer as the particular red layer of '929 with a reasonable expectation of success because '039 teaches that Alq doped with DCM1 or P-660 is known to produce red luminous layers in EL devices.

To produce a layer of Alq and then a layer of Alq with a red dopant, the evaporation of the dopant must be started. Thus, the evaporation of the doped layer must proceed either 1) by continuing the evaporation of the host Alq material and beginning evaporation of the dopant or 2) by stopping the evaporation of the host material and restarting it with evaporation of the dopant. '929 and '039 do not explicitly state which possibility is used. *Mueller Brass Co. v. Reading Industries* (176 USPQ 361, p. 369) states that in judging the level of ordinary skill in the art, it is the level of those who normally attack the problems of the art that counts; persons who do most of the problem solving in involved art are graduate engineers; as such they are chargeable with general knowledge concerning principles of engineering outside the narrow field involved and with the skills, ingenuity, and competence of the average professional engineer. One of ordinary skill in the art would have understood that stopping and restarting the evaporation of the host organic material would necessarily have taken longer than merely continuing the evaporation, and that an increase in the time of production would necessarily have reduced the number of light-emitting devices manufactured per unit time (production rate). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have continued the evaporation of the host organic material while beginning the evaporation of the dopant in order to have minimized the process time, and therefore maximized the production rate.

Claims 5 and 18: The references do not teach forming a red luminous layer of an organic material and a dopant by evaporation and then forming a green luminous layer by stopping the evaporation of the dopant while continuing the evaporation of the organic material. However, the examiner takes Official Notice that it is well known that the layers of light-emitting devices may be deposited from cathode to anode instead of anode to cathode. See, e.g., '039, col. 33, lines 33-35. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have reversed the process described above: depositing a cathode, then evaporating then the red layer, the green layer, the blue layer, and the hole-transporting layer through to the anode with a reasonable expectation of success and with the expectation of similar

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results because '039 teaches that cathode-to-anode construction is an operable method of constructing light-emitting devices. It would have been obvious to have deposited the dopant by stopped the evaporation of the dopant at the desired red layer thickness while continuing the evaporation of the Alq to have maximized production rate for reasons analogous to the discussion of starting evaporation of the dopant, above.

Claims 23 and 24: DCM1 is an organic fluorescent material. (See '676, col. 34, lines 18-35).

3. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eida '929 in view of Kobori '039, as applied to claims 5-6 above, and further in view of Singh et al. (U.S. Patent 6,228,228, hereafter '228). (Thompson et al. (U.S. Patent 6,413,656, hereafter '656) is cited as evidence.)

'929 and '039 are discussed above. They do not teach that the dopant in the red layer is phosphorescent.

However, '228 demonstrates that red light-emitting layers may be formed by doping Alq with PtOEP (col. 10, lines 26-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used PtOEP as a dopant to form a red EL layer instead of DCM1 or P-660 as disclosed by '039 with a reasonable expectation of success and with the expectation of similar results because '228 demonstrates the art recognized suitability of Alq/PtOEP layers as red EL layers, and the selection of a known material based on its suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '656 teaches that PtOEP is phosphorescent (col. 4, lines 18-22).

4. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eida '929 in view of Kobori '039, as applied to claims 5-6 above, and further in view of Yamada et al. (U.S. Patent 6,215,462, hereafter '462).

'929 and '039 are discussed above. They discuss some uses of the EL devices (e.g., '929 teaches that displays play roles as interfaces linking man and machines discusses screen displays and multimedia monitors (col. 1, lines 8-12)), but they do not specifically teach that the EL

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device is incorporated into a video camera, digital camera, goggle display, car navigation system, sound reproduction system, notebook PC, game apparatus, portable information terminal or image playback device.

'462 teaches that organic EL devices are useful as the displays in the image playback portions of cameras (col. 4, lines 46-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the EL device of '929 and '039 into an image playback device with a reasonable expectation of success because '462 teaches that organic EL devices may be used in image playback devices (i.e., a specific machine requiring a display interface between man and machine).

Response to Arguments

5. Applicant's arguments filed 10/18/2004 have been fully considered but they are not persuasive.

Applicant's arguments, see p. 6, filed 10/18/2004, with respect to the rejection(s) of claim(s) 5-6, 18-19, 23-24, 28-29, and 33-34 under 35 USC 103 have been fully considered and are persuasive in view of Applicant's amendment to require that blue, green, and red luminous layers provide white light. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the teaching of white-emitting EL devices in Eida '929.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 6-207170 is cited of interest for a more detailed discussion of the construction of the device mentioned at '929, col. 18, lines 46-52.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael Cleveland
Primary Examiner
Art Unit 1762

1/3/05